



696-261

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
PATENT OPERATION

In re Application of:
Warren Letzsch

Serial No.: **10/633,879**

Group Art Unit: **1764**

Filed : **August 4, 2003**

Examiner: **N/A**

For: **PROCESS AND APPARATUS FOR CONTROLLING CATALYST
TEMPERATURE IN A CATALYST STRIPPER**

New York, NY 10036
February 25, 2004

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT

Sir:

The following statement of relevance is submitted with the accompanying
Form PTO/SB/08A.

Document
Designation

AA
U.S.P. 2,436,927

AB
U.S.P. 2,735,802

AC
U.S.P. 2,970,117

Relevance

Relates to prevention of afterburning in fluidized
catalytic cracking processes.

Relates to a method for controlling temperatures in
fluidized solids systems for the conversion of
hydrocarbons.

Relates to a catalyst regeneration and apparatus therefor.

I hereby certify that this correspondence is being deposited with the
United States Postal Service as first class mail in an envelope
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Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

on February 25, 2004

Alan B. Clement, Reg. No. 34,563

<u>Document Designation</u>	<u>Relevance</u>
AD U.S.P. 3,672,069	Relates to a fluidized-bed cooler and method of cooling particulate solid material.
AE U.S.P. 3,702,886	Relates to a crystalline zeolite ZSM-5 and method of preparing the same.
AF U.S.P. 3,758,403	Relates to catalytic cracking of hydrocarbons with mixture of ZSM-5 and other zeolites.
AG U.S.P. 3,990,992	Relates to regeneration of cracking catalyst in a vessel with a partition forming an upper and lower zone.
AH U.S.P. 4,009,121	Relates to method of temperature control in catalyst regeneration.
AI U.S.P. 4,064,039	Relates to fluid catalytic cracking.
AJ U.S.P. 4,219,442	Relates to a fluid coke contaminated catalyst regeneration process.
AK U.S.P. 4,220,622	Relates to an apparatus for regeneration of fluidized particles or catalysts.
AL U.S.P. 4,284,494	Relates to control of emissions in FCC regenerator flue gas.
AM U.S.P. 4,325,817	Relates to control of emissions in flue gas.
AN U.S.P. 4,343,634	Relates to a process for operating a fluidized bed.
AO U.S.P. 4,353,812	Relates to a fluid catalyst regeneration process.
AP U.S.P. 4,388,218	Relates to regeneration of cracking catalyst in two successive zones.
AQ U.S.P. 4,404,095	Relates to a method and means for separating gaseous materials from finely divided catalyst particles.
AR U.S.P. 4,419,221	Relates to cracking with short contact time and high temperatures.
AS U.S.P. 4,433,984	Relates to separating particulate solids from a mixed phase solids-gas stream.

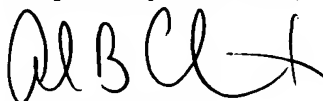
AT U.S.P. 4,434,245	Relates to a fluid particle cooling process and apparatus.
AU U.S.P. 4,439,533	Relates to a fluid particle backmixed cooling process.
AV U.S.P. 4,483,276	Relates to a fluid particle backmixed cooling apparatus.
AW U.S.P. 4,615,992	Relates to a catalyst regeneration process with improved catalyst distribution in a fluidized bed.
AX U.S.P. 4,737,346	Relates to closed cyclone FCC catalyst separation with stripping gas injection and direct steam injection.
AY U.S.P. 4,749,471	Relates to a closed FCC cyclone process.
AZ U.S.P. 4,756,886	Relates to a rough cut solids separator.
BA U.S.P. 4,828,679	Relates to octane improvement with large size ZSM-5 catalytic cracking.
BB U.S.P. 4,891,129	Relates to a process for solids-fluid separation employing swirl flow.
BC U.S.P. 4,965,232	Relates to a process for fluidized-bed catalyst regeneration.
BD U.S.P. 4,980,053	Relates to production of gaseous olefins by catalytic conversion of hydrocarbons.
BE U.S.P. 5,027,893	Relates to a heat exchanger with backmix and flow-through particle cooling.
BF U.S.P. 5,043,058	Relates to quenching downstream of an external vapor catalyst separator.
BG U.S.P. 5,087,427	Relates to a catalytic cracking unit with internal gross cut separator and quench injector.
BH U.S.P. 5,089,235	Relates to a catalytic cracking unit with external cyclone and oil quench system.
BI U.S.P. 5,232,675	Relates to a rare earth-containing high-silica zeolite having penta-sil type structure and process for the same.
BJ U.S.P. 5,234,578	Relates to a fluidized catalytic cracking process utilizing a high temperature reactor.

BK U.S.P. 5,248,408	Relates to a catalytic cracking process and apparatus with refluxed spent catalyst stripper.
BL U.S.P. 5,259,855	Relates to an apparatus for separating fluidized cracking catalysts from hydrocarbon vapor.
BM U.S.P. 5,326,465	Relates to a process for the production of LPG rich in olefins and high quality gasoline.
BN U.S.P. 5,346,610	Relates to multi-stage regeneration of catalyst in a bubbling bed catalyst regenerator.
BO U.S.P. 5,351,749	Relates to a process for cooling fluid solid particles.
BP U.S.P. 5,358,918	Relates to a hydrocarbon conversion catalyst for producing high quality gasoline and C ₃ and C ₄ olefins.
BQ U.S.P. 5,380,690	Relates to a cracking catalyst for the production of light olefins.
BR U.S.P. 5,571,482	Relates to an apparatus for controlling catalyst temperature during regeneration.
BS U.S.P. 5,601,787	Relates to an apparatus for hot catalyst stripping in a bubbling bed catalyst regenerator.
BT U.S.P. 5,670,037	Relates to a process for producing light olefins by catalytic conversion of hydrocarbons.
BU U.S.P. 5,976,355	Relates to a low residence time catalytic cracking process.
BV U.S.P. 6,210,562	Relates to a process for production of ethylene and propylene by catalytic pyrolysis of heavy hydrocarbons.
BW U.S.P. 6,211,104	Relates to a catalyst for catalytic pyrolysis process for the production of light olefins and the preparation thereof.
BX U.S.P. 6,482,312	Relates to a particulate solids cracking apparatus and process.

<p>CA Bai, Yaohua "Heat Transfer in the Circulating Fluidized Bed of Commercial Catalyst Cooler;" Refinery, Daqing Petrochemical Complex, CNPC, Longfeng District, Daqing, Heilongjiang 163711, People's Republic of China Available online July 7, 2000</p>	<p>Relates to a heat transfer in the circulating fluidized bed of a commercial catalyst cooler.</p>
<p>CB Chan, Ting Y and Soni, Dalip S., et al. "Advances in Catalyst Cooler Technology;" Process Heating/Fluid Flow September 1999</p>	<p>Relates to advances in catalyst cooler technology.</p>
<p>CC Lai, Zhouping, "Catalyst Cooling Techniques in Heavy Oil FCCU;" Lianyou Sheji Bianjibu (1995), 25(6), 44-8</p>	<p>Relates to catalyst cooling techniques in heavy oil FCCU.</p>
<p>CD "MSCCSM Process;" UOP LLC, 25 East Algonquin Road, Des Plaines, IL 60017-5017 www.uop.com</p>	<p>Relates to MSCC Processes.</p>

Abstracts or full text copies of the non U.S. patent prior art are enclosed herewith. It is respectfully requested that this art be considered by the Examiner in the above-entitled application and made of record therein. It is believed that no fee is required for submission of this Information Disclosure Statement under 37 C.F.R. §1.97(b). However, if a fee is due, the Commissioner is hereby authorized to charge Deposit Account No. 08-1540.

Respectfully submitted,



Alan B. Clement
 Reg. No. 34,563

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Heat transfer in the circulating fluidized bed of a commercial catalyst cooler

Yaohua Bai

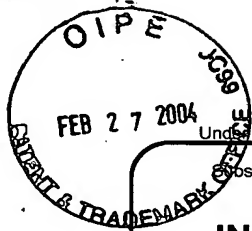
Refinery, Daqing Petrochemical Complex, CNPC, Longfeng District, Daqing, Heilongjiang
163711, People's Republic of China

Available online 7 July 2000.

Abstract

This paper presents an investigation of heat transfer performances of a catalyst cooler in a residue fluid catalytic cracking unit (FCCU). More than 3000 sets of operating data are examined. A graph of hydrodynamic regimes is summarized and the operating region discussed. Thousands of sets of the fluidized bed side film heat transfer coefficient are obtained, and a revised correlation equation is given with fair accuracy.

Author Keywords: Heat transfer; Fluidized



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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

Sheet 1 of 4

Complete if Known

Application Number	10/633,879
Filing Date	August 4, 2003
First Named Inventor	Warren Letzsch
Art Unit	
Examiner Name	
Attorney Docket Number	696-261

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)			
	AA	US- 2,436,927	03-02-1948	Kassel	
	AB	US- 2,735,802	02-21-1956	Jahnig	
	AC	US- 2,970,117	01-31-1961	Harper	
	AD	US- 3,672,069	06-27-1972	Reh et al.	
	AE	US- 3,702,886	11-14-1972	Argauer et al.	
	AF	US- 3,758,403	09-11-1973	Rosinski et al.	
	AG	US- 3,990,992	11-09-1976	McKinney	
	AH	US- 4,009,121	02-22-1977	Luckenbach	
	AI	US- 4,064,039	12-20-1977	Penick	
	AJ	US- 4,219,442	08-26-1980	Vickers	
	AK	US- 4,220,622	09-02-1980	Kelly	
	AL	US- 4,284,494	08-18-1981	Bartholic et al.	
	AM	US- 4,325,817	04-20-1982	Bartholic et al.	
	AN	US- 4,343,634	08-10-1982	Davis	
	AO	US- 4,353,812	10-12-1982	Lomas et al.	
	AP	US- 4,388,218	06-14-1983	Rowe	
	AQ	US- 4,404,095	09-13-1983	Haddad et al.	
	AR	US- 4,419,221	12-06-1983	Castagnos, Jr. et al	
	AS	US- 4,433,984	02-28-1984	Gartside et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T ⁶
		Country Code ³ Number ⁴ Kind Code ⁵ (if known)				

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This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND

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Sheet 2 of 4**Complete if Known**

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	AT	US 4,434,245	02-28-1984	Lomas et al.	
	AU	US 4,439,533	03-27-1984	Lomas et al.	
	AV	US 4,483,276	11-20-1984	Lomas et al.	
	AW	US 4,615,992	10-07-1986	Murphy	
	AX	US 4,737,346	04-12-1988	Haddad et al.	
	AY	US 4,749,471	06-07-1988	Kam et al.	
	AZ	US 4,756,886	07-12-1988	Pfeiffer et al.	
	BA	US 4,828,679	05-09-1989	Cormier, Jr. et al.	
	BB	US 4,891,129	01-02-1990	Barnes	
	BC	US 4,965,232	10-23-1990	Mauleon et al.	
	BD	US 4,980,053	12-25-1990	Li et al.	
	BE	US 5,027,893	07-02-1991	Cetinkaya et al.	
	BF	US 5,043,058	08-27-1991	Forgac et al.	
	BG	US 5,087,427	02-11-1992	Quinn et al.	
	BH	US 5,089,235	02-18-1992	Schwartz et al.	
	BI	US 5,232,675	08-03-1993	Shu et al.	
	BJ	US 5,234,578	08-10-1993	Stine et al.	
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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

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Sheet **3** of **4****Complete if Known**

Application Number	10/633,879
Filing Date	August 4, 2003
First Named Inventor	Warren Letzsch
Art Unit	
Examiner Name	
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		Country Code ³ Number ⁴ Kind Code ⁵ (if known)				

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Application Number	10/633,879
		Filing Date	August 4, 2003
		First Named Inventor	Warren Letzsch
		Group Art Unit	1764
		Examiner Name	
Sheet 4 of 4	Attorney Docket Number	696-261	

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T ²
	CA	Bai, Yaoshua, "Heat Transfer in the Circulating Fluidized Bed of a Commercial Catalyst Cooler;" Refinery, Daqing Petrochemical Complex, CNPC, Longfeng District, Daqing, Heilongjiang 163711, People's Republic of China; Available Online July 7, 2000	AB
	CB	Chan, Ting Y and Soni, Dalip S., et al., "Advances in Catalyst Cooler Technology;" Process Heating/Fluid Flow September 1999.	
	CC	Lai, Zhouping, "Catalyst Cooling Techniques in Heavy Oil FCCU;" Lianyou Sheji Bianjibu (1995), 25(6), 44-8.	AB
	CD	"MSCC Process;" UOP LLC, 25 East Algonquin Road, Des Plaines, IL 60017-5017, www.uop.com	

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